ATOMIC ENERGY Letter

THE FIRST AND ONLY

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Dear Sir:

A contract for the hull of what will be the first nuclear reactor powered submarine has now been awarded the Electric Boat Company of Groton, Conn., the Navy's Bureau of Ships stated in Washington last week. The new construction contract followed many months of work on experimental designs, under Electric Boat's classified contract with the Bureau of Ships. A prototype of the nuclear reactor which may power such a craft has been assembled at the Reactor Testing Station, Arco Idaho. In addition, Westinghouse Electric Corp., at Bettis Field, Homestead, Pa., have been engaged for some time in intensive research and development activity on the problems of a submarine nuclear reactor. At the Knolls Atomic Power Laboratory, near Schenectady, N.Y., which is operated by the General Electric Co., under a USAEC contract, similar investigations are underway.

An 87% cut was made last week, by Congressional action in Washington, in the funds which had been requested by President Truman for U. S. civil defense. Most serious of the cuts was the elimination of both a $20 million civil defense procurement fund, and a $250 million fund for shelters and other protective facilities. Another request of $250 million for emergency supplies and equipment was cut down to $50 million. In making the cuts, the House Appropriations Committee criticized the civil defense authorities for not providing a realistic, well-coordinated plan for civil defense.

A bill to broaden the authority of the Joint Congressional Committee on Atomic Energy is now being drafted, Senator Brien McMahon, chairman of that Committee, said in Washington last week. Senator McMahon, stated the new proposal would give his Committee authority similar to that of the powerful House Armed Services Committee in military affairs and legislation. (Congressional observers have noted that this is another step in the gradual wrenching of atomic control away from the USAEC, and placing it into the hands of Congress--a process which began with the appointment of Gordon Dean, former law partner of McMahon, as Chairman of the USAEC, upon the resignation of David E. Lilienthal. Another important step in this shifting of control to Congress was stripping the USAEC's general manager of much of his power to make independent decisions by making him, indirectly, an appointee of the Joint Committee. The wisdom of entrusting the U. S.'s most complex and highly technical industrial enterprise to political machinations, and permitting it to become a patronage plum, is extremely questionable, these observers have stated.)

Some indication of the activity at the Savannah River site of the USAEC's $900 million hydrogen bomb material's plant is seen in the construction force total, which has now reached 13,000 persons. Additionally, a 45-hour work wee has been instituted at the site.

In the United Nations last week (New York), the Soviet Union delegate asked elimination of any mention of majority proposals for veto-free atomic energy control in the plan for the creation of a new over-all disarmament commission.

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AT THE ATOMIC CITIES & CENTERS...in the United States...

REACTOR TESTING STATION, Arco, Idaho- The chemical processing plant being erected here will be operated by the American Cyanamid Co., New York, under a contract recently negotiated between that company and the USAEC. The contract superceded an interim agreement under which that firm had established an office in Idaho Falls (near the plant site) under the direction of F. A. Hall. Now being constructed by the Bechtel Corp., San Francisco, the plant will process nuclear reactor end products from the reactors that will operate here at Arco. Plant design and recovery processes are the work of the Oak Ridge National Laboratory; Foster-Wheeler Corp., New York, holds a contract for architect-engineering of the plant.

BROOKHAVEN NATIONAL LABORATORY, Upton, New York- A three day international conference on the chemistry and physiology of the cell nucleus, held here last week, found approximately 150 leading biochemists, cell biologists, physiologists, and geneticists, from research institutions in various parts of the country in attendance. Twenty-three papers were covered at this meeting.

HANFORD WORKS, Richland, Washington- A survey of the construction and architect-engineering contracts now being administered by General Electric, prime contractor at this plutonium production project, shows their total dollar values to exceed $100 million. General Electric took over operation of Hanford in 1946; since then it has handled over $350 million in contracts. Total government investment in this project since its inception in 1943: $650 million. Under the current expansion program here, there are 38 construction sub-contractors to GE at present, with 6500 employees of the construction firms.

OAK RIDGE, Tennessee- The last of the three 1951 Summer courses in basic radioisotope techniques is now under way here, with 32 participants from universities, hospitals and government and industrial laboratories from 22 states. The program is conducted by the Oak Ridge Institute of Nuclear Studies; so far, over 800 persons have been trained in the techniques of using radioisotopes as tracers.

Since the distribution began of radioisotopes produced in the Oak Ridge nuclear reactors, some five years ago, USAEC facilities have made over 18,900 shipments of radioactive isotopes and 1,550 shipments of stable isotopes for studies in 1,165 departments in some 610 U. S. institutions. In addition, more than 1,135 shipments of radioisotopes have gone to some 250 institutions in more than 30 nations abroad.

From reports given the isotope distributing station here on the utilization of isotopes, it is apparent that radioactive cobalt is finding increasing uses as a source of radiation for the testing of castings and welds, by industry in general. Of interest is that the amount of radiocobalt shipped during the last half of 1950, and the first half of 1951, has increased by 564 per cent over the total amount shipped during the first four years of the radioisotope program. (This compares with shipments of the other two leading isotopes--radioactive iodine and radioactive phosphorous--which increased 94 and 54 per cent, respectively.) Some 72 industrial companies are currently using radiocobalt for radiography.

Among new industrial applications of radioisotopes which have been reported in recent months are: (1) A method developed by the Rock Island Arsenal, Illinois, for determining the concentration of sulphur in chromium plating baths. (2) A technique used by Carnegie Institute of Technology, Pittsburgh, for measuring the self-diffusion of cobalt, of importance to metallurgists. (3) A test developed by Atlantic Refining Company, Philadelphia, for forecasting the extent of deterioration of asphalt roads due to the action of water.

LOS ALAMOS, New Mexico- The special panel set up by the USAEC to get the Commission out of the "company town" business has now recommended that Los Alamos and Richland be made self-governing communities with privately owned real estate. Los Alamos exists for the National Laboratory, and other projects here, while Richland is the General Electric-administered town-adjunct to the plutonium works there. The instigation of the panel was at the insistence of the House Appropriatons Committee which has been constantly critical of the manner in which the USAEC was having community services rendered by contractors.

NEW PRODUCTS, PROCESSES, & INSTRUMENTS...for nuclear work...

The first of a series of scintillation detectors available on a commercial basis from Nuclear Research and Development, Inc., St. Louis 5, Mo., is that firm's Model SC-2. This unit incorporates a 5819 photomultiplier tube and is mounted in a chrome-plated brass cylinder. Model SC-2 use a NaI-Thallium activated crystal, especially mounted in a polystyrene holder to provide maximum optical transmission, and functions as an efficient end-window gamma counter. From 25 to 100 times the efficiency of a normal Geiger counter is obtained. Model SC-2 comes complete with cable, ready to be used with any commercial scaler or count-rate-meter employing a pulse amplifier, discriminator, and well regulated high voltage supply.

Now in production by Landsverk Electrometer Company (an affiliate of Technical Associates, Burbank, Calif.) are two new instruments: Model L-22 charger is a battery type instrument, for use with that company's L-75 analysis unit. Two leads with spade lugs connect to the binding posts of the analysis unit, while the friction charger of the analysis unit serves as the contact switch. Adjustments may be made for any reset position of the fibre. Housed in a metal case, the unit measures 3" x 3-3/4" x 2-3/4" high.....Model L-21 dosimeter charger is also a battery-type instrument. It will charge all current models of Landsverk dosimeters. The battery life of the instrument is said to be the shelf life.

ATOMIC ENERGY WORK ABROAD...Sweden...

The Atomic Energy Committee of Sweden, consisting of 13 members selected for their outstanding contributions to science or technology or known as prominent administrators, dates back to November 1945, when it was organized to plot the course of Swedish nuclear research. As a result of its recommendations, AB Atomenergi (The Atomic Energy Company) was founded in November, 1947, as a joint-stock company, with more than 50% of the shares owned by the State. The share capital of the company is at present $644,000.00, of which the Swedish government has subscribed $130,000.00 and private undertakings $280,000.00. The private stockholders will for the present limit their contributions to this part of the share-capital. The running expenses of the company are covered by annual allotments granted by parliament, which, from the financial year starting July 1st, 1950, will amount to $728,000.00 a year. Since the founding of AB Atomenergi, the organization of atomic research in Sweden has not been changed, the Atomic Energy Committee now acting principally as an ordinary research council. The annual allotment to the committee is now $364,000.00, so that together with the allotments to AB Atomenergi, nuclear research in Sweden now gets $1,092,000.00 annually. (Note: Dollar figures at current rate of exchange: 5.18 kroner to the dollar.)

As a result of the stimulus provided by the Committee, particle accelerators already finished, or now under construction, have reached a large figure. At the Nobel Institute for physics, in Stockholm, a cyclotron for 25-30 MeV deuterons is now in the test-running stage. At the Gustav Werner's Institute for Nuclear Chemistry at Uppsala, is a synchrotron for 200 MeV protons. A synchrotron for 35 MeV electrons is operating at the Royal Ihnstitute of Technology in Stockholm. Three of five planned Van de Graaff generators giving voltages between 800 kV and 5 MV are operating. Beta spectrometers, mass separators, mass spectrometers, equipment for the separation of isotopes by means of diffusion, etc., have been built or are under construction at different institutes.

The activity of AB Atomenergi since its beginning in 1947 has among other things been concentrated on the problem of extracting uranium from Swedish shale, and from the enclosures, called "kolm", in the shale. A pilot plant for the extraction of uranium from kolm has been completed, and work has now started on a large-scale plant. The present analytical laboratories will be enlarged and moved to a new building, which will also house metallurgical and uranium refinery laboratories.

ATOMIC PATENT DIGEST...latest U.S. applications & grants...

Method of mitigating radioactive contamination of an object. Comprises the steps of (1) applying a hydrolyzable silicon compound selected from the group consisting of silicon tetrachloride and silicon oxychloride to the object, (2) exposing the object to moisture whereby the compound is hydrolyzed and, (3) removing the hydrolyzed compound and the radioactive contamination adsorbed therein. U. S. Pat. No. 2,563,587, issued Aug. 7, 1951; assigned to United States of America (USAEC).

Ion source. Comprises a tubular anode defining an ionization chamber, a cathode positioned in the anode for emitting electrons, a grid seated in an intermediate position of this anode and beyond the cathode for cooperation with the anode to attract electrons therefrom, and means for setting up a magnetic field threading the anode for spiraling the electrons in their movement to increase ionization. U. S. Pat. No. 2,563,626, issued August 7, 1951; assigned to United States of America (USAEC).

Shielded container. A container comprising a top plate, a bottom plate, a space between these plates, and several flat-surfaced, receptacle-containing trays combined into a single stack by being vertically mounted between these plates. A space is provided in these trays for a radioactive material. U. S. Pat. No. 2,563,718, issued August 7, 1951; assigned to United States of America (USAEC).

Method of positioning an ionic boundary in a liquid stream. Comprises subjecting ions in question to the electrolyzing actions of charged electrodes in this stream, measuring the electrical conductivity at the desired boundary position and controlling the rate of flow of this stream countercurrent to the motion of this boundary toward one of these charged electrodes in response to changes in conductivity of this stream at the desired boundary position. U. S. Pat. No. 2,563,729, issued August 7th, 1951; assigned to United States of America (USAEC).

Method of making halogen polymers. A method useful for producing polymers which soften above 200 deg. C., which comprises heating an olefin selected from the group of trifluoromonochloroethylene and difluorodichloroethylene at a temperature in the range of 40-deg. C. to 150-deg. C. in the presence of elemental oxygen as a polymerization promoter to produce a solid polymer. U. S. Pat. No. 2,564,024, issued August 14th, 1951; assigned to United States of America (USAEC).

Method of measuring integrated neutron activity. Comprises measuring the resistance of a solid elongated body, this body consisting of elements transmuting to gaseous elements under neutron bombardment, exposing the body to neutron radiation to obtain partial transmutation to a gaseous element, and measuring the electrical resistance of the body after this exposure. U. S. Pat. No. 2,564,626, issued August 14, 1951; assigned to United States of America (USAEC).

BOOKS & OTHER PUBLICATIONS...in the atomic field...

Labelled Atoms, by Raymond Glascock. A useful reference for workers in this field. 227 pages. Interscience Publishers, Inc., New York 1. ($1.25)

Introduction to Heat Transfer. The 2nd edition of this text by A. I. Brown and S. M. Marco; useful for students of reactor engineering. 284 pages. McGraw-Hill Book Co., New York 18. ($4.50)

Radioisotopes as used to study poultry nutrition. A two page report of the U. S. Agricultural Research Administration. Published in the "Report on Agricultural Experiment Stations, 1950".- - Superintendent of Documents, Wash. 25, D. C.

Civil Defense Household First Aid Kit. Recommendations for a kit of easily assembled items which are for a household bomb shelter.--Superintendent of Documents, Wash. 25, D. C. (5¢)

Sincerely,

The Staff,
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